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Factors Improving Bus Transferability as the Choice-Mode of Passengers at Bambalapitiya Railway Station

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Bus transit is one of the main transfer modes which facilitate an efficient integrated transport system by increasing economic and social benefits. Inadequacy and inefficiency of prevailing public bus transport as a mode of transferring at railway stations has led passengers to switch to various other means to reach their destinations. This has led to increased traffic congestion mainly on urban roads at heavy economic cost to society. Improving bus transferability is crucial to enhancing bus-rail integration efficiently and effectively, while providing quality services fulfilling user requirements. In the Sri Lankan context, research identifying determinants of transfer mode choice for improving bus transferability or rail-bus integration is deficient. Hence, determining the factors underlying transfer mode choice is imperative to upgrading the prevailing transfer bus services at railway stations whereas introducing new transfer services. The main objective of this study is to identify the factors influential to the improvement of bus transferability at the Bambalapitiya Railway station. Accordingly, the main motivation of this study is to determine which attributes of the public bus service inclines people to use it as their transfer mode and to identify the user needs to be met by prevailing transfer bus services. The study is based on primary data collected from passengers who do not use public bus transport as their current transfer mode. A structured questionnaire with a five-point Likert scaling was used to ascertain passengers' experience and opinions who had different mode choices. Data analysis is based on the evaluation of passenger satisfaction with service quality. Factor analysis and descriptive statistical analysis were used to identify the factors underlying improved bus transferability. The study mainly considered sixteen attributes of quality: accessibility, waiting time, cleanliness of the bus stop, facilities of the bus stop, loading level, safety of driving, traffic conflict, harassments, curtsey of bus crew, bus route coverage, bus frequency, availability, bus quality, privacy, cleanliness and travel time that affect transfer mode choice. The findings of the descriptive analysis clearly showed a high loading level and increased travel time as crucial factors for not using the existing transfer bus service. As per the results of factor analysis, the six main groups which loaded the sixteen factors are network design, convenience, and safety, quality of buses, background factors, and time consumption. According to the factor extraction, passengers are more concerned about network design which comprises bus route coverage avoiding transfers, availability of service to their destination and frequency of connections aligning with the arrival time of trains. Prioritizing the deployment of additional buses during peak hours, introduction of new bus services with integrated time scheduling and the assurance of

quality, efficient service is imperative to enhancing bus transferability at the railway station. The study gives a reasonable path ahead to transport decision-makers, planners, and managers to configure policies that will ensure more effective bus transferability for existing bus users and attract new passengers through an efficient rail-bus integration.

Keywords: *transferability, quality attributes, bus transit, Factor Analysis, Mode-choice*